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LOBATOSTOMA ANISOTREMUM NEW SPECIES, (TREMATODA: ASPIDOGASTREA), PARASITIC IN THE TELEOST FISH *ANISOTREMUS SCAPULARIS* FROM CHILE

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ABSTRACT

Lobatostoma anisotremum new species (Trematoda: Aspidogastrea), a monogenetic trematode from the intestine of the marine teleost *Anisotremus scapularis* (Common name "Sargo"), caught off Antofagasta, Chile, is described. Distinctive characteristics of the species are: ventral disk with 130 alveoli, of which 32 are central and 66 marginal; testis located at posterior third of body. Vitellaria folicular extended from the middle of the disk up to the posterior end, at level of testis. This is the first report of the genus from the southeastern Pacific Ocean. A key to the species of the genus *Lobatostoma* is provided.

During a parasitological survey of marine fishes from Antofagasta, Chile, we found monogenetic trematodes of the genus *Lobatostoma* in the intestine of the marine teleost *Anisotremus scapularis.* Examination of the parasites showed them to be an undescribed species of *Lobatostoma.* A description of the parasites, *Lobatostoma anisotremum,* new species, and a key to the genus is provided herein.

MATERIAL AND METHODS

Parasites were obtained from the intestine of 16 specimens of *Anisotremus scapularis,* caught off with nets, in the beaches of Antofagasta, Chile, during May–June 1982. Parasites were washed in 0.87% saline solution, relaxed under pressure between two slides, fixed in AFA and post-fixed in 10% formalin. Whole mounts of specimens were stained in Ehrlich's acid or Delafield's haematoxylin, dehydrated in ethanol, cleared in xylene or creosote and mounted in Canada balsam. Drawings were made with the aid of a camera lucida. Measurements are in millimeters unless otherwise indicated. Means are given with ranges in parentheses.

Specimens for scanning electron microscopy were dehydrated through a graded series of ethanol, and then critical-point-dried. The parasites were coated and examined with an electron microscope JOEL-JSM-25 S-II, of the Pontificia Universidad Católica de Chile.

The following institutional abbreviations apply: MZUC = Museo Zoologico Universidad de Concepción, Chile. IIO = Instituto de Investigaciones Oceanológicas, Universidad de Antofagasta, Chile.

Lobatostoma anisotremum new species
Figures 1–3

Host.—*Anisotremus scapularis* (Tschudi, 1844), Common name "Sargo."

Site.—Intestine.

Type Locality.—Antofagasta, Chile, 23°42'S lat; 70°24'W long.

Holotype.—MZUC No. 6413.

Paratypes.—MZUC No. 6414-6415. IIO: Two whole mounted stained.

Description.—(Based on six specimens). With the characters of the genus *Lobatostoma* Eckmann, 1932. Body cylindrical (Fig. 1). The worms reach a maximun length of 7.648 (6.205–8.348) when pressed and 3.75 to 4.241 when unpressed. Anterior end of body with 5 lobes, 2 ventral and 3 dorsal (the central being the smaller).

Ventral disk 5.321 (4.33–5.848) length in pressed worms and 2.857 to 3.125

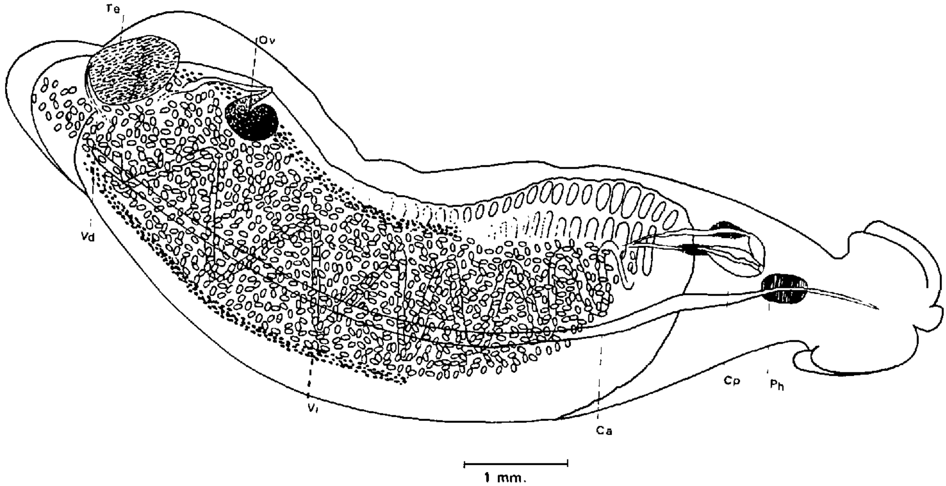

Figure 1. Internal anatomy of the holotype: Ca, Caecum; Cp, Cirrus pouch; Ph, Pharynx; Ov, Ovary; Te, Testis; Vi, Vitellaria; Vd, Vas deferens.

in unpressed ones. Independently of the degree of contraction of the helminth during pressure, the disk is 70% (64–76) of the total length.

The total number of alveoli is 130, of which 66 are marginal and 32 centrally located. Marginal organs present (Fig. 2).

Tail (or posterior end which projects from the ventral disk), changes size according to the degree of contraction during relaxation is 0.982 (0.391–1.704).

Pre-pharynx 0.318 (0.227–0.429); pharynx rectangular, longer than wide, 0.31 by 0.242. Esophagus short, the caecum reaches the posterior end of the ventral disk without overlapping it.

Genital pore dextral to caecum, opening just below the pharynx. Testis large, ovoid, 0.788 (0.757–1.035) by 0.622 (0.441–0.782), and within the posterior third of body according to degree of relaxation during fixation. In some specimens the testis is posterior to the ventral disk, while in others it is between the limit of the disk and its posterior end; in three specimens the testis was located at the posterior border.

Cirrus sac small, ovoid, 0.457 (0.391–0.542) in length; seminal vesicle with internal and external portion. *Vas deferens* coiled, extending up to the posterior end of the body (Fig. 1).

Ovary pearshaped (Fig. 3), anterior to testis, with a dextral posterior projection giving rise to an oviduct, which extends posterior; Laurer's canal begins a little before the "U" curve of the oviduct, which continues ascending up to the uterus; first portion of uterus surrounded by the Mehli's glands which receive the viteloducts. Vitelline glands arranged in two parallel rows from the middle of the disk to the posterior end.

Eggs oval 95 μm (91–100) by 52 (45–58) μm.

Excretory vesicle not observed.

Living specimens are pink in color, when first observed, but become colorless after approximately 0.5 h immersion in saline solution.

Etymology.—The specific name derives from the generic name of the host fish.

The following artificial key, modified in part from that of Rohde (1973), allows

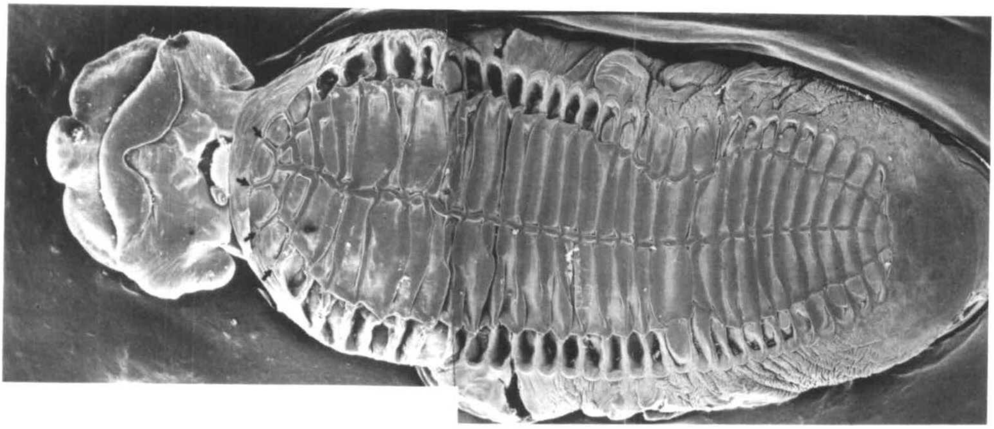

Figure 2. Scanning electron micrographs of a paratype, showing ventral disk and marginal organs (arrow) (90×).

separation of all known species of the genus. *Lobatostoma* sp. Hopkins (cited by Rohde, 1973) and *L. peruanus* (species doubtful, known only by personal communication, Escalante, 1982), are considered *nomen nudum,* because of the lack of adequate description.

Key to Species of the Genus *Lobatostoma*

1a. Tail long, at least ⅓ of the total length 2
1b. Tail short, less than ⅓ total length 3
2a. Tail shorter than ventral disk. Testis anterior to end of ventral disk; 32 (rarely 34) marginal alveoli .... *L. pacificum* Manter, 1940
2b. Tail longer than ventral disk. Testis near end of disk. Total number of alveoli 51–60 .... *L. kemostoma* (McCallum & McCallum, 1913)
3a. Testis in middle third of body .... *L. albulae* Yamaguti, 1968
3b. Testis in the last third of body 4
4a. Cirrus pouch small, no more than twice the size of pharynx 5
4b. Cirrus pouch large, more than twice the size of the pharynx, 56–62 marginal alveoli .... *L. manteri* Rohde, 1973
5a. Vitellaria extended from the anterior margin of the disk 6
5b. Vitellaria extended from at least the middle of the disk, 66 marginal alveoli, 32 central .... *L. anisotremum* new species
6a. 36–42 marginal alveoli, 16–19 centrally located .... *L. ringens* (Linton, 1905)
6b. 40–46 marginal alveoli, 19–22 centrally located .... *L. hanumanthai* Narasimhulu and Madhavi, 1980

DISCUSSION

According to Rohde (1973), separation of *Lobatostoma* species is largely based on tail length. With regard to this character, *L. anisotremum* is close to *L. albulae, L. ringens, L. manteri* and *L. hanumanthai.* All these species, but not *L. albulae,* have the testis located at the posterior third of body. Narasimhulu and Madhavi (1980), are of the opinion that the position of testis, due to its variable location, does not have taxonomic value; a similar situation is presented by the new species, where at least four positions were found; moreover, all these variations were found within the limits of the posterior third of the body. Therefore, the taxonomic value of the position of testis is valid, because its position always occurs within the limits of the posterior third of body.

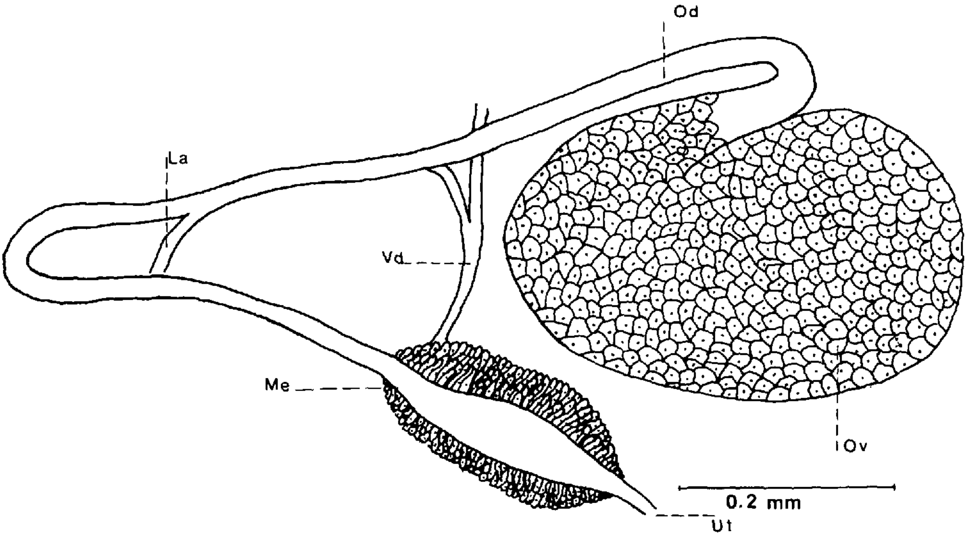

Figure 3. Female genital system (composition): Ov, Ovary; Od, Oviduct; La, Laurer's Canal; Vd, Viteloducts; Mg, Mehli's gland; Ut, Uterus.

L. anisotremum can be separated from *L. ringens, L. manteri* and *L. hanumanthai* by having more marginal alveoli (66 in the new species) and in the distribution of the vitelline glands; from the middle of the disk to the posterior end in *L. anisotremum.*

According to Narasimhulu and Madhavi (1980), *L. albulae* could be a synonym of *L. ringens*; if so, all known species of *Lobatostoma* would have fishes of the genus *Trachinotus* (Carangidae) as hosts, in addition to others. *Lobatostoma anisotremum* would be the only species having not a Carangidae, but a fish of the family Pomadasydae as host. The genus *Trachinotus* has only one representative in Chile, *Trachinotus paitensis,* but is very rare in the northern Chilean coastal waters (Bahamonde and Pequeño, 1975).

The habitat of both genera (*Trachinotus* and *Anisotremus*) is different; the former is mainly pelagic while *Anisotremus* lives in close association to sandy bottom. Rohde (1973) and Narasimhulu and Madhavi (1980), reported that gastropods made up the principal diet for *Trachinotus blochi* (the species studied by them). In *Anisotremus scapularis,* stomach contents normally consist of decapods (*Rhynchocinetes typus*) and gastropods (*Turritella* sp.). Similar food habits indicate that gastropods are fed upon by both fish host. Further studies might demonstrate an association between the presence of *Lobatostoma* in both fish genera, and their respective food preferences.

ACKNOWLEDGMENTS

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